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USING BRIEF EXPERIMENTAL ASSESSMENT OF READING INTERVENTIONS FOR IDENTIFICATION AND TREATMENT OF A VOCAL HABIT

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An 11-year-old boy presented in an outpatient clinic with a vocal habit that occurred during reading and conversation. A brief reading assessment was conducted to determine an effective intervention to decrease the habit. A modified version of the word error-correction procedure resulted in positive changes and was implemented by his mother during home reading practices. Significant decreases in the rate of vocal habit were observed during home reading probes, generalization probes, and follow-up.

DESCRIPTORS: habit reversal, habit disorders, reading, experimental assessment, generalization

Vocal habits or tics represent a dysfluency in vocal behavior; the goal of treatment is to decrease the dysfluency and ultimately increase fluency. Habit reversal is an empirically supported procedure to reduce vocal habits and improve vocal fluency (Woods, 2001). Components of habit reversal may include awareness training, modeling competing responses, practicing competing responses, and reinforcing competing responses.

Vocal dysfluency may occur while reading. Brief experimental analyses are recommended for identifying effective reading interventions for children who have difficulties with reading fluency (Daly, Martens, Dool, & Hintze, 1998). Common reading interventions include repeated readings, passage previewing, word error correction, reinforced rapid readings, and paired reading. Improved reading fluency is frequently the goal of reading intervention; brief assessments of oral reading fluency are reliable and valid indicators of reading skill and are sensitive to short-term instructional growth (Shinn, Good, Knutson, & Tilly, 1992).

Common reading interventions to improve reading fluency have components similar to habit reversal treatments. Parallels include additional practice with materials (repeated readings), modeling of appropriate responses (passage previewing and paired reading), and practice of correct and competing responses (word error correction). This study used a brief experimental analysis of these common reading interventions to develop an intervention to decrease vocal habits while reading.

METHOD

Participant and Setting

John, an 11-year-old boy, presented with motor and vocal habits at an outpatient behavioral health clinic located in a pediatric practice in a rural community in the midwest. He had been diagnosed with a chronic motor tic disorder and had a history of nocturnal enuresis. He was receiving special education services for a learning disability in written expression. Motor habits involved repetitively tensing his face and pulling his arms up to his chest while making fists for a few seconds. His vocal habits were most apparent during oral reading and involved adding the utterance ''ah''

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to the end of words. He also engaged in the vocal habit during conversational speech. Both habits were reported to have been occurring prior to kindergarten, and John denied engaging in either habit (i.e., he was apparently not aware of the habits). All assessments occurred in the clinic, and his mother implemented the recommended treatment in their home over the summer.

Materials, Dependent Variable, and Reliability

Fifth-grade reading passages were selected from Spargo (1989). Different fifth-grade passages were used for all probes. The rate of vocal habits (number per minute) was the primary dependent variable. An additional dependent variable was words read correct per minute (WRM-C).

All reading probes in the clinic and the final reading probes at home were audiotaped. Interscorer agreement data were collected for 20% of the probes by a second independent scorer. Agreement was assessed on a word-by-word basis as to whether the vocal habit had occurred. The mean agreement for rate of vocal habits was 95% (range, 89% to 100%).

Thirty percent of the home reading sessions were recorded to assess treatment integrity using a 10-item treatment integrity checklist. The mean percentage of correct steps was 97% (range, 90% to 100%). Integrity data were also collected on the accuracy with which his mother initiated phrase error correction (PEC) when a habit occurred (discussed further below).

Procedure

Brief reading assessment. Curriculum-based measurement probes were conducted prior to the brief reading assessment to determine John's reading fluency for fifth-grade passages (baseline). The brief reading assessment occurred during two 50-min sessions over 1 week. During the brief reading assessment, rate of vocal habits and WRM-C were collected on the final reading of each passage (Daly et al., 1998). The repeated reading condition involved John reading aloud the same passage three times for approximately 1 min each time, and rate of vocal habits was collected on the final reading. Repeated readings permit increased practice with the same material to improve reading fluency. During the passage preview condition, an experimenter read the passage aloud to John and then John read the same passage aloud for 1 min. This intervention assesses the effect of modeling on reading fluency. During the word error-correction condition, John read a passage aloud and was stopped when he exhibited the vocal habit. He was told to repeat the word three times, reread the sentence, and then continue reading. John then reread the passage without being interrupted. This condition evaluates the effect of increased awareness, modeling, and practice with a competing response (i.e., repetition of the word without habit). The PEC condition was identical to word error correction except that John was required to repeat the phrase containing the word three times. This condition evaluated the effect of increased awareness, modeling, and practice saying connected words without the vocal habit (e.g., competing response). Finally, during reinforcement of lower rates of the habit condition, John was told that if he decreased the number of vocal habits by 10%, he could earn a reward.

A multielement treatment design was used during the initial brief reading assessment to determine the most effective intervention for decreasing the vocal habit (Daly et al., 1998). If an intervention decreased the vocal habit substantially, a reversal to baseline was conducted and was followed by repetition of the treatment condition.

Home reading practices. Based on the results of the brief analysis, John's mother was trained in the clinic to implement the PEC procedure with John at home. The home reading sessions occurred over the summer when he did not not receive services from school or additional interventions. Home reading sessions consisted of 10 to 20 min of preferred readings and a

1-min generalization probe with a passage from the timed reading series that John had not read previously. The PEC procedure was not implemented during the generalization probes. Reading sessions and generalization probes were audiotaped by the mother, sent to the primary experimenter, graphed, and then reviewed with the family in the outpatient clinic to determine whether modifications should be made to the program. Twenty-three home reading practices were conducted over a 2-month period. John earned tokens for participating in the reading practices regardless of performance. Tokens were exchanged for prizes that John had selected as preferred items.

Follow-up. In the clinic, fifth-grade reading probes were conducted at the completion of treatment as well as at 1- and 2-month intervals following intervention.

Conversational speech. As part of the brief reading assessment and during the second follow-up session, John was asked to tell one story verbally based on a story starter. Both of these stories were recorded, and the 1st minute of each story was coded for the number of ''ah'' utterances that he made. No intervention that targeted conversational speech occurred at any point during this study.

RESULTS AND DISCUSSION

Results of the brief reading assessment demonstrated that PEC was the most effective intervention for decreasing rate of verbal habits (Figure 1, top). No change in the vocal habit occurred during any of the other assessment conditions. When the intervention was implemented at home, the rates were significantly lower than initial baseline rates; however, the rate was variable over the first 10 treatment sessions with no specific trend. Due to this variability, a treatment integrity session was conducted in the clinic. It was determined that the percentage of times his mother stopped him when he engaged in the vocal habit to repeat the phrase averaged only 38%. As a result, the mother was instructed to stop John every time he engaged in the habit. Following this corrective feedback, average integrity increased to 63% (Figure 1, bottom), vocal habits substantially decreased, and this decrease was maintained at 1- and 2-month follow-up clinic probes. Reading fluency (WRM-C) also remained within the mastery or instructional level for his grade (average of 111 WRM-C during brief reading assessment and 109 WRM-C at final follow-up).

Finally, samples of speech collected prior to and following the intervention indicated a decreased rate of vocal habits (i.e., 13 prior to intervention and 1 at follow-up). Thus, the intervention effects may have generalized to conversational speech without specific intervention.

The major strength of the study is its empirical demonstration that an experimental reading assessment can be used to identify an effective intervention for a vocal habit. The major limitation of the study is that a reversal and return to treatment condition was not conducted for the PEC intervention in the home. However, the audiotapes of treatment implementation represent a high standard of data-based clinical practice that is especially useful when true experimental analysis is difficult to obtain. Nonetheless, future studies should include such an analysis for in-home interventions.

A theoretical implication of the study is that its results suggest possible parallels between improving vocal fluency using habit reversal techniques and improving reading fluency with reading interventions with the PEC procedure. Specifically, the PEC intervention used in this study resembled habit reversal procedures by increasing John's awareness of habit occurrence (i.e., he was stopped anytime while reading when ''ah'' occurred) and requiring him to practice a competing response when the habit occurred (i.e., repeated the phrase in which the ''ah'' had occurred). The possibility of such parallels between interventions for reading and the best known intervention for habits—habit reversal—merits further empirical investigation.

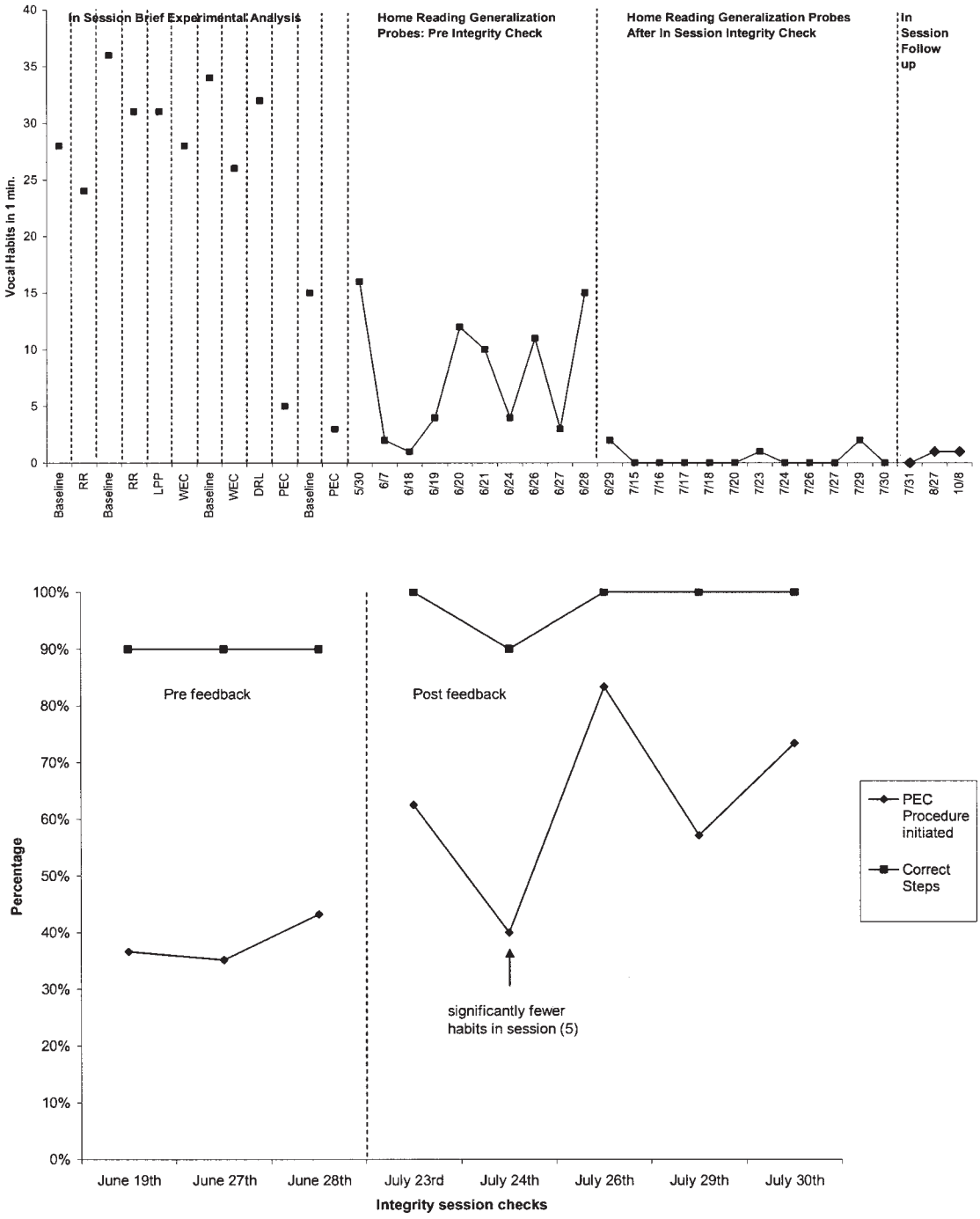

Figure 1. Brief reading assessment, home reading practices, and follow-up for vocal habits per minute while reading (top). Integrity information on the percentage of correct steps completed and the times his mother initiated the phrase error-correction procedure (bottom).

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